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PREVENTION AND RESPONSE  
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## DEVELOPMENT OF GUIDANCE ON MATTERS RELATING TO IN-WATER CLEANING

### Before, during and after in-water cleaning

Submitted by ICS and BIMCO

#### SUMMARY

*Executive summary:* This document proposes a number of operational and safety aspects that need to be taken into consideration when planning, executing, and after an in-water cleaning event. The guidance given in this document addresses the ship and the in-water cleaning company.

*Strategic direction,  
if applicable:* 1

*Output:* 1.21

*Action to be taken:* Paragraph 10

*Related documents:* MEPC 76/13/2 and MEPC 80/17

### Background

1 MEPC 80 adopted resolution MEPC.378(80) on the *2023 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species* (2023 Biofouling Guidelines).

2 MEPC 80 also agreed to change the title of output 1.21 from "Review of the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (resolution MEPC.207(62))" to "Development of guidance on matters relating to in-water cleaning" and add it to the biennial agenda of the PPR Sub-Committee.

3 PPR 10 invited interested Member States and international organizations to work intersessionally and submit concrete proposals on guidance on matters relating to in-water cleaning to the next session of the Sub-Committee.

4 In document MEPC 76/13/2 ICS and BIMCO provided information on an industry standard on in-water cleaning which was developed to ensure that the in-water cleaning of a ship's hull, and niche areas including the propeller, can be carried out safely, efficiently and in

an environmentally sustainable way. More than 25 participants from Administrations, anti-fouling system (AFS) manufacturers, international organizations, in-water cleaning companies, laboratories, paint manufacturers and shipowners participated in a working group which lasted three years. The content of this submission is based on an updated version of this work.

### **Discussion**

5 In some countries, the authorities, who are responsible for issuing permits, will be located in the port whilst others are a central authority of a country or a region. A cleaning permit may include requirements on emergency stops if necessary to avoid damage to safety, health and the environment.

6 Many permits only allow in-water cleaning of ships once all safety parameters are adhered to. Should any of the conditions change the cleaning may have to be suspended until such parameters are restored.

7 The cleaning should not be conducted in a manner that impairs the current and future performance of the AFS. Certain cleaning procedures may damage the AFS in such a way that is not immediately visible but could accelerate biofouling growth. Such damage could be caused by rough edges on the wheels of the unit or other parts of the equipment that touches the ship's AFS during cleaning.

8 There may be instances when the cleaning of the entire hull and niche areas is not possible. There could be several reasons for this, such as size of the ship, duration in port/anchorage, operational difficulties that led to the suspension of a cleaning activity midway, etc. In such circumstances, the ship should continue its cleaning activity at the next available opportunity. To achieve this, the cleaning report should include specific details to give an overview as to which areas were cleaned. This will enable other parties, including the next cleaning company, to continue cleaning from where it was left off.

### **Proposal**

9 The co-sponsors propose that in-water cleaning should cover activities before, during and after cleaning to ensure that the in-water cleaning is conducted efficiently, safely and in an environmentally sound manner. The annex contains a detailed description of such activities.

### **Action requested of the Sub-Committee**

10 The Sub-Committee is invited to consider the proposal in paragraph 9 and take action as appropriate.

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## ANNEX

### **ACTIVITIES BEFORE, DURING AND AFTER CLEANING TO ENSURE THAT THE IN-WATER CLEANING IS CONDUCTED EFFICIENTLY, SAFELY AND IN AN ENVIRONMENTALLY SOUND MANNER**

#### **Operational procedures**

The cleaning company should develop a standard operating procedures (SOP) manual covering at least the following:

- .1 specific operational procedure to be followed by the personnel involved when undertaking cleaning activity; this should include specific procedures followed in the use of the cleaning equipment, guidance of diver along the hull to provide complete coverage of cleaning as required, camera and/or video operation;
- .2 if the above includes a remotely operated vehicle (ROV), procedures to follow for the operation of ROV, methods and equipment to ensure the ROV operator can determine the ROV's location and orientation in relation to the ship;
- .3 maintenance and calibration of equipment involved in accordance with the instructions of the manufacturer;
- .4 training requirements of the operators/technicians/inspectors/divers – these should as a minimum cover the points mentioned under "training of personnel" below;
- .5 supervision and verification process to ensure compliance with operational procedures;
- .6 recording and reporting of information such as collection of photographs of AFS condition, biofouling status, use of biofouling coverage scale, development of cleaning and service reports;
- .7 periodic review of near misses, work processes, procedures, complaints, corrective and preventive actions;
- .8 process of issuance, maintenance and control of documents; and
- .9 contingency plans based on risk analysis for breakdowns, accidental discharges, and any other untoward incident that the cleaning company anticipates during the cleaning process.

Training of personnel should as a minimum include:

- .1 training requirements of technicians involved in operation and maintenance of surface units, separation and treatment units;
- .2 operation of underwater communication system for manned operations;
- .3 any special equipment necessary to conduct the work safely, e.g. cranes, barge operations, storage units, ship to ship transfer;

- .4 understanding of the specific cleaning process and technology applied, as applicable;
- .5 knowledge of and ability to assess biofouling encountered during normal course of operation;
- .6 awareness of AFS types and working knowledge of associated cleaning procedures; and
- .7 knowledge of underwater video monitoring systems using still cameras, video cameras, TV monitors on deck.

### **Pre-cleaning preparations**

When the decision to clean the ship's hull and/or niche areas has been taken, the shipowner should request a list of cleaning companies from the port.

The shipowner should send the following information to the appointed cleaning company:

- .1 date, time and location within port (berth/anchorage);
- .2 details of AFS on board, including its type and the coating manufacturer's advice on cleaning;
- .3 age of AFS and its expected service life timespan;
- .4 previous damage to the AFS if any;
- .5 list or drawing arrangement of reference areas;
- .6 the area(s) of the ship to be cleaned (for example, does the ship need a full cleaning or has another company previously done a partial cleaning?);
- .7 if niche areas need to be cleaned, information should be provided in the following categories:
  - .1 niche areas present on the vertical side or the bottom of the ship that can be readily cleaned;
  - .2 propellers; and
  - .3 niche areas that need special cleaning equipment and procedures;
- .8 latest inspection/cleaning reports;
- .9 available amount of time for cleaning;
- .10 other operations planned by the ship such as repairs, bunkering, storing, etc;
- .11 transfer of the ship within the port area, alongside and at anchorage, if relevant; and
- .12 any other relevant information, such as idle periods, special precautions to be taken while cleaning, etc.

The cleaning company should inform the shipowner about the regulatory requirements and standards applicable for cleaning in the specified port and if the cleaning company can provide the required service.

The appointed cleaning company should inform the shipowner about the following:

- .1 the cleaning system's environmental performance;
- .2 areas the cleaning company can clean:
  - .1 hull, and niche areas present on the vertical side or the bottom of the ship that can be readily cleaned;
  - .2 propellers; and
  - .3 niche areas or hull areas that owing to bends, turns, etc. need special cleaning equipment and procedures;
- .3 local cleaning permit (issued by the port and/or other relevant authority);
- .4 environmental conditions, in which the cleaning company can operate, including sea state, weather conditions, visibility, etc.;
- .5 the equipment that will be used for cleaning the ship's hull and/or niche areas such as cleaning units, umbilical, control unit, separation and treatment unit including use of active substances, if any;
- .6 cleaning procedure, type of anti-fouling coatings (AFC) or marine growth prevention systems (MGPS) that the company has been approved to clean, e.g. by a paint manufacturer or MGPS manufacturer;
- .7 place of cleaning either alongside and/or anchorage area;
- .8 the required length of time to conduct the cleaning;
- .9 limitations associated with performing the cleaning (for example night operations, areas the in-water cleaning system may not be able to clean, etc.);
- .10 capture, separation, treatment and waste disposal processes;
- .11 local port requirements; and
- .12 any other relevant information.

### **Pre-cleaning preparations**

A meeting should be held between the ship and the cleaning company's representative to:

- .1 determine appropriate safety parameters and relevant information on how to access niche areas; and
- .2 agree upon important stages of cleaning and develop a plan of cleaning.

The cleaning company should plan the cleaning meticulously to ensure that the process is undertaken efficiently, safely and in an environmentally sound manner. The cleaning company should submit an outline of the operation plan to the ship and the port.

The cleaning company should plan its resources to avoid/minimize breakdowns/interruptions. Communication between the ship and in-water cleaner should be planned and evaluated. Before the planned operation, functional checks, pre-dive checks of the cleaning and capture system plus the associated ancillary equipment should be conducted.

An approved pre-dive checklist for guidance should be used and cross checked with the record of any defects and recent repairs.

The ship should follow established procedures to ensure that equipment such as thrusters, propellers, etc. are locked or tagged out to ensure they cannot be used while the diver and/or ROV are in the water. The divers, if any, should witness the locking and tagging of equipment prior to entering the water. The cathodic hull protection system should also be powered off during the cleaning process.

### **Safety and environmental requirements for the cleaning company**

All relevant international and local or port regulations in relation to underwater work should be strictly adhered to. The cleaning company should inform the port/relevant authorities if it suspects that the type or coverage of biofouling on the ship is outside the capability of their system.

Before the commencement of the cleaning activity, the cleaning company should conduct an inspection of the area to be cleaned and a safety check of equipment, etc., as per the list below:

- .1 The cleaning activity should be planned to ensure the safety of the personnel, equipment and ship during the entire operation. The underwater cleaning route should be well planned to avoid losing orientation underwater. As a minimum, the planning should take into consideration water visibility, current, tidal variations, weather conditions, simultaneous operations such as bunkering, ballasting/deballasting, movement of cranes, obstructions at the quay such as fenders, mooring dolphins, other ships in the area, pinch points and location of surface support (for diver's emergency evacuation).
- .2 Establish safety procedures should the movements of other ships affect the cleaning operation.
- .3 Agree on a timeline regarding the securing of key systems and equipment. For example, the propeller should not be able to move during the cleaning process and the cathodic hull protection system should be powered off whilst the hull is being cleaned.
- .4 Procedures should be in place to ensure that all systems and equipment, including personal protection equipment (PPE), are functional and still within their operational life.
- .5 Recording equipment such as video cameras should be function tested, including the media where the recording will be stored.
- .6 Establish how to minimize the risk of loss of material when planning the cleaning in complex areas, e.g. in the vicinity of bends, turns, etc.

- .7 Contingency plans and procedures should be in place to prevent and mitigate the exceedance of any safety and/or environmental parameters and ensure that the cleaning operations are suspended and remain suspended until such parameters are safely restored.
- .8 Safety checklists dependent on local regulations and diving equipment.
- .9 Outline emergency shutdown procedures designed to prevent the spill of biofouling effluent back into port waters.

### **During cleaning**

The cleaning company should maintain communication with the ship, port and other relevant authorities throughout the cleaning operation and comply with any instructions in accordance with operational protocols specific to the ship and the port.

The cleaning company and the ship should communicate to ensure the cleaning can take place as planned:

- .1 a check of the operational area should be continuously evaluated to establish:
  - .1 if there is enough clearance to clean the side of the ship, for example, quay side clearance, fenders, barge operations, etc.;
  - .2 under keel clearance throughout the operation, taking into consideration the expected rise and fall of tide and change in the draft of the ship; and
  - .3 any potential movements of ships which could affect the cleaning operation;
- .2 any areas of concern occurring during cleaning;
- .3 AFS damage to establish if the cleaning should proceed;
- .4 any discrepancies between the records on the ship and the actual condition of underwater hull or niche areas of the ship; and
- .5 the cleaning company should outline the sequence of cleaning and when changes to the plan occur.

### **Post-cleaning inspection**

A post-cleaning inspection should be conducted upon completion of the operation. The cleaning inspection can be done during the cleaning process by using cameras installed on the ROV unit. It is important that the photos and videos clearly depict any remaining biofouling and the AFS condition of the cleaned area. If this cannot be achieved, then the cleaning company should conduct a post-cleaning inspection after the cleaning activity is completed. It should be noted that some types of biofouling will leave often non-viable, skeletal remnants, even after cleaning, which cannot be removed without damaging the AFS. Examples include the baseplates of barnacles and bases of worm tubes.

This inspection should cover the entire area that was cleaned. Photographs and/or videos should be used to collect and retain evidence of the cleaning activity and demonstrate effective removal and capture of biofouling have taken place.

### **Post-cleaning safety and environmental requirements**

A post-cleaning meeting should be held to close out the permit and to confirm that the ship's equipment and machinery can be reinstated to the normal operational status. The following should be checked after completing all in-water cleaning activities:

- .1 personnel are out of the water and equipment have been removed from the water and brought back to their original positions;
- .2 all underwater gratings are safely restored to their original state; and
- .3 all in-water cleaning system equipment including the hoses, separation and treatment units have been contained in their original positions. The cleaning company should ensure any residues and waste materials do not find their way into the local marine environment.

When confirmation has been received that all cleaning equipment and personnel have been removed from the water, the ship can be made operational by releasing locked out or tagged out systems.

### **Service report**

This service report contains basic information about the cleaning that was conducted. The cleaning company should hand over the service report to the master or another representative of the ship at the post-cleaning meeting and before the ship's departure.

If the cleaning activity did not cover the entire planned area or areas, documentation should be made to show where the cleaning started and where it stopped. The documentation should be sufficiently detailed to enable another in-water cleaning company to continue the cleaning at the next available opportunity. This documentation should be recorded in the cleaning report and in the biofouling record book (BFRB).

### **Cleaning report**

The results of the cleaning operation should be accurately documented in the cleaning report, and should be retained on board the ship, along with the BFRB.

The cleaning report should contain information based on documentation from areas after cleaning, details of the cleaning performed plus the state of the AFS after cleaning.

Further, it should provide detailed information about the location of the cleaned areas to enable another in-water cleaning company to continue the cleaning if necessary.

Cleaning reports should be retained for a period of at least two years on board the ship and thereafter with the shipping company until at least five years have elapsed since the date of the cleaning.